

Notice of Allowability

Application No.

09/917,376

Applicant(s)

DING ET AL.

Examiner

Art Unit

Sheridan L. Swope

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to August 20, 2007.
2. ☒ The allowed claim(s) is/are 1,2,7,8,12,14,15,28,30-36,43,48,53 and 54.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>0807</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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DETAILED ACTION

Applicant's response, on August 20, 2007, to the Action on the Merits of this case mailed May 18, 2007, is acknowledged. It is acknowledged that Applicants have cancelled Claims 50, 51, 55, 56, and 59 and amended Claims 1, 4, 5, 7-9, 12, 15, 28, 43, 48, 52-54, 57, and 58. Claims 1, 2, 4, 5, 7-9, 12, 14, 15, 28, 30-36, 43, 48, 52-54, 57, and 58 are pending. Claims 8 and 58 were previously withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. However, Claims 8 and 58, as now amended, are encompassed by the elected invention. Claims 1, 2, 4, 5, 7-9, 12, 14, 15, 28, 30-36, 43, 48, 52-54, 57, and 58 are hereby reconsidered.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Claims

Cancel Claims 4, 5, 9, 52, 57, and 58.

Replace Claims 1, 2, 7, 8, 12, 14, 15, 28, 30, 31, 34, 36, 48, 53, and 54 with the following.

1. A composition comprising an isolated genetically engineered polypeptide comprising a fragment of SEQ ID NO: 1, wherein said fragment has cellulase activity and, wherein said polypeptide was expressed in a heterologous host cell.

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2. The composition of claim 1, wherein the polypeptide comprises the glycosyl hydrolase family 74 (GH74_Ace) catalytic domain set forth by SEQ ID NO: 3, a linker, and a signal sequence.
7. The composition of claim 2 wherein the polypeptide further comprises the polypeptide sequence of SEQ ID NO: 4.
8. The composition of claim 2 wherein the polypeptide further comprises the polypeptide sequence of SEQ ID NO: 5.
12. An isolated genetically engineered polypeptide, said polypeptide comprising the sequence of SEQ ID NO:1, wherein said polypeptide was expressed in a heterologous cell.
14. The composition of claim 1, wherein the composition is an industrial mixture suitable for degrading cellulose.
15. The industrial mixture of claim 14, wherein the industrial mixture comprises a detergent.
28. A composition comprising an isolated genetically engineered polypeptide, said polypeptide comprising SEQ ID NO: 3 or a fragment thereof having cellulase activity, wherein said polypeptide was expressed in a heterologous host cell.
30. A fusion protein comprising SEQ ID NO: 3, or a fragment thereof having cellulase activity, and a heterologous peptide.
31. The fusion protein of claim 30, further comprising the polypeptide of SEQ ID NO: 4 or SEQ ID NO: 5.

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34. The fusion protein of claim 30, wherein the heterologous peptide is an agent that promotes polypeptide oligomerization, said agent selected from the group consisting of a leucine zipper and an Fc polypeptide.

36. A cellulase-substrate complex comprising an isolated genetically engineered polypeptide bound to cellulose, said polypeptide comprising SEQ ID NO: 3 or a fragment of SEQ ID NO: 3 having cellulase activity, wherein said polypeptide was expressed in a heterologous host cell.

48. The composition of claim 1, wherein the fragment has, under the same conditions, at least the same level of cellulase activity and thermal tolerability as exhibited by the polypeptide of SEQ ID NO: 1.

53. A composition comprising an isolated genetically engineered polypeptide, said polypeptide comprising a catalytic domain of GH74_Ace, wherein said catalytic domain is the polypeptide of SEQ ID NO: 3 and wherein said polypeptide further comprises the polypeptide of SEQ ID NO: 4 or SEQ ID NO: 5.

54. The composition of claim 28 wherein said polypeptide comprises SEQ ID NO: 3.

Authorization for this examiner's amendment was given in a telephone interview with Cara Weber on December 6, 2007.

Allowable Subject Matter

Claims 1, 2, 7, 8, 12, 14, 15, 28, 30-36, 43, 48, 53, and 54 are allowed.

The following is an examiner's statement of reasons for allowance:

All allowable claims, Claims 1, 2, 7, 8, 12, 14, 15, 28, 30-36, 43, 48, 53, and 54, are limited to the isolated polypeptide of SEQ ID NO: 1, and fragments thereof having cellulase activity, as well as fusion proteins and compositions comprising said polypeptides. The utility

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of polypeptide of SEQ ID NO: 1 as having cellulase activity, is credible based on expression in heterologous host cells and analysis by an enzymatic assay (Example 1). Cellulases have real-world, industrial applications (Bhat et al, 1997). Therefore, the polypeptide of SEQ ID NO: 1 has a specific and substantial, patentable utility.

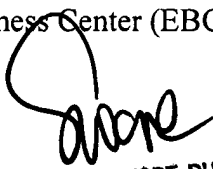
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheridan Lee Swope, Ph.D.
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SHERIDAN SWOPE, PH.D.
PRIMARY EXAMINER